



THE GEOLOGICAL SOCIETY OF AMERICA

Geoscience Education Division

<http://gsaged.org/>

June 2009

From Your Newsletter Editor

Greetings, Division members! I hope this newsletter finds you well, whether on break or in session.

I recently returned from the Access Data curriculum development workshop (June 2-6), held this year on the campus of beautiful Colorado College in Colorado Springs. This is my second Access Data workshop, and both have been wonderful experiences, working on teams comprised of scientists, data managers, educators, and curriculum writers to create education modules for the Earth Explorations Toolbook <http://serc.carleton.edu/eet/index.html>. This year's teams are creating modules that explore everything from global climate change to ocean spreading centers to the spatial location of trash, and more <http://serc.carleton.edu/usingdata/accessdata/workshop09/team/index.html>.

Many colleagues work to convene these workshops, but I wanted to commend Tamara Ledley from the Technical Education Resource Center (TERC) and Mike Taber from Colorado College for the terrific job they did organizing this year's workshop, which included field trips to Pike's Peak (I saw snow!!) and Garden of the Gods, hands-on lab sessions, and networking opportunities, in addition to the education module development sessions.

The earth science teaching resources that have been developed at this series of workshops (this was the sixth) are available to everyone on the EET website, and allow geoscience educators at all levels to bring exercises into their classrooms that contribute to the greater understanding of Earth systems through data collection and analysis.



There is simply no way that pictures can do justice to the grandeur of the Rocky Mountains or to the spectacular geology and environments of Colorado. But that didn't stop me from snapping photos everywhere I went. The picture at left is from Garden of the Gods Park. These are uplifted Permian sandstones (part of the Lyons formation) that make this a must-see visit if you are ever in Colorado Springs. The picture to the right shows alluvium deposited following the 1982 failure of an earthen dam in



Rocky Mountain National Park (myself, right, trying to stay warm, and a former student, now living in Ft. Collins, CO, who acted as my tour guide).

But enough of my fawning over rocks...this issue of the GED newsletter contains important information regarding the upcoming GSA meeting in Portland, OR, and about the election of new GED officers for the coming year (candidate bios and instructions for mailing in your ballot or for voting online). Not to mention many submissions from Division officers and members. Happy reading!

As always, if you have items you would like included in an upcoming newsletter, please e-mail them to me at mhafen@cas.usf.edu.

Mark Hafen
University of South Florida

Kudos are in Order

Dr. Michael J. Passow is the current President of the National Earth Science Teachers Association. He teaches at Dwight Morrow High School in his home town of Englewood, NJ. Dr. Passow also serves on the AGU Committee on Education and Human Resources, and leads the highly-acclaimed "Earth2Class Workshops for Teachers" at Columbia University's Lamont-Doherty Earth Observatory www.earth2class.org. Previously, Dr. Passow taught Earth Science for 22 years at White Plains (NY) Middle School, and served as President of the Science Teachers Association of New York State (STANYS). For his accomplishments, STANYS will induct Dr. Passow as a Fellow during its annual conference in November.

Send your congratulations to Mike at michael@earth2class.org!

Also:

Lois K. Ongley was promoted to Professor at Unity College (Maine). She teaches environmental chemistry. She and her colleagues are developing an Earth Systems Science major at Unity College.

Lois earned her BA in Geology at Middlebury College, VT; MS at Texas A&M University (in basalt petrology); and two degrees from Rice University, Master of Environmental Science & Engineering (hydrology) and a PhD, also in Environmental Science & Engineering (contaminant fate and transport). With colleagues and students, she published six papers on the hydrogeochemistry of the Zimapán Valley in Mexico, an NSF REU project. Other topics of research interest include gender issues in academia and experiential pedagogy.

A longtime member of GSA, Lois has also been a member of the Association for Women Geoscientists since 1981. She has also worked as a lab flunky, an oil & gas exploration geologist, and as a high school chemistry teacher. She occasionally teaches geology in Riyadh, Saudi Arabia. Her employment history (in her words) has been analogous to the old curse, "May your life be interesting."

Send your congratulations to Lois at longley@unity.edu!

Virtual Geology Celebrates Mile "stone"!

The Virtual Geology Museum and the Cochise College Geology Home Page have just had their one millionth visitor! These interlinked websites are dedicated to the promotion of the colors and wonders of geology. There are now over 9000 photos of minerals, crystals, rocks, fossils, and meteorites that are copyright-free for non-commercial educational uses. There are also nearly 200 short presentations on a large variety of geology topics that were created by students of Cochise College.

A major goal of this website project is to provide educational resources for geoscience educators (K-12 to college level), who have limited funds and collections and who have no access to museums for their students.

Recent additions to the websites include:

- historic geologic papers on the geology of Bisbee, Arizona
- an expanded collection of links on invertebrate fossils
- views of the geology of Australia
- a large collection of drawings of twinned crystals, and
- a major article on the geology of the San Pedro River Valley in Cochise County, Arizona

The fastest access route to these websites is to search on Google for "Cochise Geology" or "Virtual Geology Museum" or try this link: <http://skywalker.cochise.edu/wellerr/VGM/intro.htm>. For more information, contact Roger Weller at wellerr@cochise.edu.

Roger Weller
Cochise College (AZ)

New WebCenter Invites YOU as an Author

We are excited to announce that a new Geoscience Concept Inventory (GCI) WebCenter is now available for public use! This new webcenter offers an opportunity for the geoscience and science education communities to join us as authors of the GCI. While more features will be implemented at the GCI WebCenter in the future, two of the most important functions are now ready for use: online question submission and question review. We encourage you to begin using the GCI WebCenter to submit and review questions. You can access the GCI WebCenter through the following steps:

- 1) Go to <http://gci.lite.msu.edu>
- 2) Click on the "Peer Review" or "Submit question to..." buttons (at 5 and 6 o'clock). Note that other buttons lead to explanatory text explaining the GCI development cycle; these buttons will lead to other parts of the WebCenter as functions are added.
- 3) Register with the GCI WebCenter. You should receive confirmation within one business day.
- 4) **SUBMIT A QUESTION!** The Submit Question button allows submission of potential new GCI questions. You can download a Question Development Workbook for specific guidance in writing concept questions. Questions that have undergone community review and pilot testing will eventually become part of the GCI question bank.
- 5) **REVIEW A QUESTION!** The Peer Review button allows users to post comments and discussion about GCI questions. At the moment, only the 68 validated GCI v.2.1 questions are available for review. You can scroll through these questions and provide feedback as part of a discussion. As new questions become available for community review, you will see this page change to highlight specific content areas.



Please join us as authors of the GCI, and please pass on this information to anyone who might be interested in creating an assessment tool that is used, developed and authored by an entire community. We anticipate including several hundred new authors on this expanded GCI; the GCI will then become a unique tool "created for and by" all of us!

Julie Libarkin, Steve Anderson, Gerd Kortemeyer, Stuart Raeburn
The GCI WebCenter Team
Michigan State University

News from the Division Chair

■ **Four GED Members Honored with 2009 GSA Fellowship**

Fellowship is an honor that is bestowed on the best of our profession once per year at the GSA Spring Council meeting. GSA members are elected to Fellowship in recognition of distinguished contributions to the geosciences.

Congratulations to new GSA Fellows in the Geoscience Education Division:

John L. Isbell
R. Mark Leckie
Gary D. Rosenberg
Wendy Van Norden

For a complete list of GED members honored as GSA Fellows, visit the GED website at:
http://www.gsaged.org/messages/gsa_fellowship.htm.

■ **GED Welcomes New GSA Council Liaison**

Lisa D. White, Associate Dean and Professor of Geosciences at San Francisco State University, will be the new GSA Council Liaison for the Geoscience Education Division from July 1, 2009 to June 30, 2010. She will be replacing Nancy J. McMillan, who has been our Council Liaison since 2005.

The GSA Council is the governing body of GSA. Division liaisons are appointed by GSA Council for the following purposes:

- Bring concerns of the Division members and management board to the attention of the GSA Council
- Bring questions and concerns of the Council to the GED
- Attend GED board and business meetings at the GSA Annual Meeting

■ **Support the Geoscience Education Fund by Doubling Your Dues**

The purpose of the Geoscience Education Fund is to support geoscience education awards, grants, scholarships, and other activities as determined by the GED management board. These include the recently established GED Service Award, student travel awards, student scholarships to participate in GED-sponsored field trips and workshops, and subsidies to help offset the facilitator costs of geoscience education workshops held in conjunction with GSA meetings. As the fund grows, the GED management board plans to add other focus areas such as: a student recognition award for best paper or presentation, geoscience education student receptions, and travel support for invited speakers and/or international presenters.

Donations can be made by going to <http://www.gsafweb.org/makeadonation.html> and selecting "Geoscience Education Fund." If all GED members would simply "double their dues" (normally \$5) by clicking on the above link or when renewing membership at the end of the year, this would add up to a great contribution to an important and worthwhile fund. Thanks for your support!

Elizabeth Nagy-Shadman, Chair
Geoscience Education Division
Pasadena City College

Earth Science Literacy: Your Input Made a Difference

Editor's Note: in the last issue of this newsletter, your input was solicited for the draft document of the Earth Science Literacy Initiative.

The Earth Science Literacy Principles have been released! Please visit www.earthscienceliteracy.org to download a copy. This document defines the most important Earth science concepts all Americans should know.



The organizing committee, made up of a representative cross section of scientist-educators from the solid Earth and hydrologic sciences, had input from over 700 people from the science and education communities. It is our hope that this document reflects a unified message from the scientific

community to the public, policy-makers, and informal and formal science educators.

A GED-sponsored **Topical Session T107: Promoting Literacy about Earth System Science Concepts** has been proposed for the GSA Annual Meeting in October 2009. Please submit abstracts related to efforts to increase public Earth system science literacy or to better understand the hurdles the geoscience community is facing. Please contact Nicole LaDue nicoleladue@gmail.com or Michael Wyession Michael@seismo.wustl.edu for more information.

Nicole LaDue
National Science Foundation

Nominate an Outstanding Earth Science Teacher

The Geoscience Education Division supports the Outstanding Earth Science Teacher (OEST) award program run by the National Association of Geoscience Teachers (NAGT) by providing a three-year membership in the Geoscience Education Division for section winners (GSA provides a monetary award and a three-year Teachers Associate Membership), and a one-year membership to state winners.

All GED members are urged to nominate exemplary earth science teachers for this award. Any teacher or other K-12 educator who covers a significant amount of earth science content with their students is eligible. An online nomination

form is available at the NAGT website at <http://nagt.org/nagt/programs/oest-nom.html>. Nominations are accepted at any time during the year and may be sent to the NAGT sectional OEST chair or to the NAGT Executive Director.

John R. Wagner
Clemson University

Texas Teachers Field Camp

G-Camp for Teachers, (Geology Field Camp) an outreach program of the Department of Geology & Geophysics at Texas A&M University, will take 30 Texas teachers in grades 4-12 on a two-week field camp starting July 11, 2009.

In its second year, the program gives teachers first-hand experience with the principles of geology in the field, helps them develop new curriculum for their classrooms, and makes learning fun and exciting. This field experience puts participants on outcrops, the slope of a volcano, the footwall of a fault, and at the toe of a landslide. They will find themselves in a spectacular glacial valley and in several pristine flowing streams – just a few of the experiences G-Camp for Teachers provides while visiting geological locations in Texas, New Mexico and Colorado.

Led by Drs. J.R. (Rick) Giardino, John (Jack) Vitek, professors of Geology & Geophysics, and Carolyn Schroeder, research associate in the Center for Math and Science Education at Texas A&M, the goal of G-Camp for Teachers is to increase the geosciences workforce by ensuring quality teaching of the geosciences in grades 4-12 that will help attract more motivated young people to professions in the geosciences.

The program is funded by industry and Texas A&M University. For more information, contact Rick Giardino at rickg@tamu.edu or visit the program website at http://web.me.com/rickgiardino1/G-Camp_2009/Welcome.html.

John R. (Rick) Giardino, Ph.D., P.G.
Texas A&M University

Educational Resources from the Ohio Geological Survey

The Ohio Geological Survey has an Open File Report that may be of educational value. The report is titled "A Compilation of Planning Resources for Geologic Field Trips in Ohio" and can be found online at:

<http://www.ohiodnr.com/Portals/10/pdf/OpenFileReports/OFR2007-1.pdf>

The report puts information about geology-themed activities in Ohio in an easy to use format. Accessing the PDF online allows linking directly to various information sources. The report also provides information on how to order or obtain publications.

In addition to the aforementioned report, the Ohio Geological Survey, working with CET Connect, developed an online multi-media program to help teach students in grades 3-5 about Ohio's geology. The program is called "Ohio Rocks!" Although it is geared to Ohio, it may be applicable to other Midwest states. Here is a link to the site: <http://www.cetconnect.org/ohiorocks/>.



Douglas L. Shrake, PG
ODNR-Division of Geological Survey
Columbus, OH

Falls Fossil Festival

The Falls of the Ohio State Park's (Clarksville, IN) 15th "Falls Fossil Festival" will be held September 19 (9 a.m. - 6 p.m.) and 20 (10 a.m. - 5 p.m.), 2009. This event, sponsored by the Falls of the Ohio Foundation, will feature:

- Daily **non-technical programs and workshops** for hobbyists, educators and the curious on fossils, minerals, and collecting.
- **Vendors** selling fossils, minerals, books, educational items, crafts and food.

- **Children's Activity Area** with a variety of geo-craft activities scheduled.
- **Resource Tent** where you can get fossils and rocks identified by members of the Indiana Society for Paleontology, the Kentucky Paleontological Society and the Kyana Geological Society. Learn about other geological sites with material from many other fossil parks in North America, as well as information and free literature from the Indiana and Kentucky Geological Surveys.
- **Fossil and mineral identification** (bring in your mystery rocks!)
- **Hikes** on the fossil beds, including extended hikes on the outer fossil beds.
- **Collecting Silurian and Devonian fossils** from special rock piles donated by Hanson Aggregates and mineral piles from the dumps of Cave in Rock fluorite mines.
- **Exhibit:** "Green Planet: The History of Plants!" in our Interpretive Center explores the rise of plants in Earth's fossil record. This exhibit is in partnership with paleobotanist Dr. David W. Taylor, chair of the Department of Life Sciences at Indiana University Southeast. (This exhibit runs August 15 – November 29.)

Proceeds benefit the educational programs at the Falls of the Ohio State Park, which reach more than ten thousand students each year! A detailed schedule for the Festival is posted on our website at: <http://www.falloftheohio.org>. For more information, contact Alan Goldstein at (812) 280-9970 ext. 403.

Alan Goldstein
Falls of the Ohio State Park
Clarksville, IN

Faculty Position at URI

Recently we received a 5-year, \$12,500,000 grant from the NSF MSP program, the purpose of which is to change the STEM culture in Rhode Island, with the hope that our approach could be applied elsewhere in the country. As part of this project, we are hiring an earth systems geoscientist. The position would be initially funded 50% by NSF and 50% by the university. After the duration of the project, it would be funded 100% by the university. Thus, this is a new, tenure-track position in the geoscience department.

Below is more information about the position, including how to apply. Although the position remains open until filled, as advertised in appropriate venues, we are anxious to move forward in our hire. Because of recent retirees, our department is thinnest in "hard rock" geology (i.e., structure, tectonics, igneous & metamorphic petrology, high temperature geochronology, and geochronology).

ASSISTANT PROFESSOR OF EARTH SYSTEMS SCIENCE

The University of Rhode Island invites applications for a full-time, tenure-track Assistant Professor position beginning September 1, 2009, in Earth Systems Science. The position will initially be funded both from the National Science Foundation and the University of Rhode Island.

Primary research responsibilities under the NSF award will include the development of inquiry-based methods for teaching STEM curricula to in-service K-12 teachers and undergraduates. The applicant will also teach earth science undergraduate courses in his/her area of expertise and contribute to science education methods courses. A Ph.D. in Earth Systems Sciences or equivalent and demonstration of a research program in some aspect of earth systems science required. Post-doctoral experience and potential for developing Earth Systems Science education programs are preferred.

Review of resumes will begin 05-15-09 and continue until position is filled. Submit (no e-mails or faxes, please) a letter of application, a statement of research and teaching interests, a curriculum vita, and the names and contact information of three referees to: David E. Fastovsky, Search Committee Chair (Req # 12447), UNIVERSITY OF RHODE ISLAND, P.O. Box G, Kingston, RI 02881. The University of Rhode Island is an AA/EEO employer and is committed to increasing the diversity of its faculty, staff and students. Persons from under-represented groups are encouraged to apply.

Dan Murray
Department of Geosciences
University of Rhode Island

All About GSA

■ *Technical Sessions of Special Note Provided by Members/Conveners*

► Are you an "involved" geoscientist? We could all do a better job letting our friends, neighbors, and community know about what we do and how geology impacts their lives. In this session, you will be able to share ideas on how we can all become more involved in our communities and better communicate the geoscience perspective. Please consider submitting an abstract to: **T146. Ensuring Geologic Controversies are Addressed with Good Science in the Classroom, the Community, and the Capitol.**

Sponsors: National Association of Geoscience Teachers (NAGT); GSA Geology and Public Policy Committee; GSA Geoscience Education Division; American Geological Institute (AGI) Public Policy; Geoscience Information/Communication; Geoscience Education

Session Description: Geologic controversies may be real or manufactured, but they always capture the public's attention. This session will present ideas and examples of ways to ensure the scientific perspective is included and given precedence when controversies arise.

Rationale for Topical Session: When the conclusions of geologists are controversial for political, social, or economic reasons, the scientific perspective can be pushed aside. Geoscientists must use the inherent respect for the field to ensure that good science receives precedence when controversies arise. Building educational, social, and political relationships within the community, are key to gaining access and being received with respect when controversy arises. Having a reputation for providing objective information based on good data and supported by logical conclusions is equally important. This session will provide examples of scientists successfully ensuring that scientific perspective was given its due place in the public debate as well as analyses of instances where good science ended up in the back seat.

To submit an abstract, go to: <http://gsa.confex.com/gsa/2009AM/top/papers/index.cgi?sessionid=24188> and follow the instructions. Deadline for submissions is Tuesday, August 11, 2009.

For more information, please contact:

Michael A. Phillips
Natural Sciences
Illinois Valley Community College
815 N. Orlando Smith Ave,
Oglesby, IL 61348
Phone: (815) 224-0394, Fax: (815) 224-3033
Mike_phillips@ivcc.edu

Linda Rowan, Government Affairs
American Geological Institute
4220 King Street, Alexandria, VA 22302
Phone: (703) 379-2480 ext. 228
rowan@agiweb.org

► The Geoscience Education Div and the Planetary Geology Division are co-sponsoring a theme session for the GSA Annual Meeting. We encourage contributions of abstracts for the session: **T113. Using Planetary Examples to Teach about Terrestrial Volcanoes.**

We invite abstracts that review and provide ways of integrating volcanoes from other planets into geosciences courses to enhance students' understanding of terrestrial geology and allow students to expand their skills to multiple planetary environments.

Rationale: Geologists no longer have just one planet to study – or teach about. With multiple planetary missions providing high resolution data sets, it is now possible, and appropriate, to teach geologic processes with examples from many planets; and to bring this knowledge “home” to more effectively teach terrestrial geoscience in the 21st Century. This approach can be particularly useful for the study of volcanism. Volcanoes are an exciting, dynamic, and popular geoscience topic, but they are often only touched on in Introductory Geology classes. Yet, volcanism is a geologic process that is extremely important to an understanding of integrated Earth system science, including geoscience literacy and hazard analysis by the general public; and volcanism appears to have affected all of the solid surface planets (and some of the outer planet satellites) of our Solar System. Our understanding of terrestrial volcanoes has already been enhanced by new knowledge of volcanoes and volcanic landforms on the other planets (a theme session entitled "Advances in Terrestrial Volcanology from Planetary Exploration" will be sponsored by the Planetary Geology Division for the annual meeting); this proposed topical session will address: (1) the tools, materials, topics, and data sets that can be used to expand the teaching of volcanoes through the addition of planetary

examples; (2) the ways in which planetary volcanoes have already been used in successful geoscience teaching for pre-college and college level geoscience classes; (3) needs and suggestions for the inclusion of a planetary component in teaching about volcanoes to a variety of audiences, including the general public.

Sponsors: Planetary Geology Division, Geoscience Education Division, On the Cutting Edge: Leadership Development in the Geosciences.

Co-Conveners

Jayne C. Aubele
1st Vice Chair, GSA Planetary Geo Division
Senior Educator/Geologist,
New Mexico Museum of Natural History and Science
Albuquerque, NM
jayne.aubele@state.nm.us

Barbara Tewksbury
Upton Chair of Public Discourse
Department of Geosciences
Hamilton College, Clinton, NY
btewksbu@hamilton.edu

► Announcing a technical session to be held at the upcoming GSA conference in Portland, Oregon (October 18-21, 2009). This session, ***T104 Geoscience Programs at Community Colleges: Models for Success and Innovation***, will highlight a variety of programs and how they successfully achieve their goals. Among the issues which may be discussed are the following:

- What makes for a strong community college earth science program.
- The focus of these programs - career training, geoscience literacy, or both.
- Strategies for helping students become geoscience literate.
- How community college earth science department encourage and prepare geoscience majors.
- The role of university-community college and high school-community college collaborations.
- How community college geoscience programs relate to the vocational programs in their own institutions.
- The role of community college geoscience courses in providing science background for future teachers.
- How professional networks enhance the mission of community college geoscience program.
- How community college geoscience departments mentor the many adjunct faculty that they employ.

If you are a community college geoscience educator, or university or high-school staff involved with a community college earth science program, we encourage you to attend this program. If you are a geoscience educator having experience with any of the issues that we've listed, we strongly encourage you to submit an abstract (abstract deadline is August 11, 2009). If you have questions or additional ideas please feel free to contact either of us, session co-chairs Frank D. Granshaw (Portland Community College, Portland OR) fgransha@pcc.edu or Eric Baer (Highline Community College, Des Moines WA) ebaer@highline.edu.

Frank D. Granshaw
Portland Community College

► We would like to bring your attention to a topical session that we are organizing for the GSA Annual Meeting in Portland this coming October: ***T98: Earth Science in Place-Based Teaching (Poster Session)***.

The session is endorsed by NAGT and the GSA GED. If this trans-disciplinary topic interests you, consider submitting an abstract. Participants share ideas on using geographically diverse "places" as contexts for teaching Earth Science. Place-based teaching cultivates local knowledge and encourages the appreciation of landscapes. Importantly, the "place" approach also incorporates cultural and aesthetic insights.

There is increasing interest among Earth science educators at all levels in this trans-disciplinary teaching approach that emerged mostly from K-12 practice. However, given the locally situated nature of the approach, its practitioners are geographically scattered with limited opportunity to share exemplary ideas. This session will be devoted to exactly this kind of exchange, among long-time and novice place-based educators, and will be particularly attractive to K-12 teacher attendees at the Portland meeting.

Geologists love places in the field – the chaotically disrupted orderliness of outcrop patterns, the majestic scenery hiding secrets of landscapes long departed, the record of comings and goings of extinct beasts under changing climates. They are attached to place and disciplined in mind – they have achieved *querencia*. The Spanish word *querencia* evokes how feelings and deepest beliefs attach the self to place (Barry Lopez, 1998, [The Rediscovery of North America](#)). Meaningful attachment to land and community, argues Lopez, helps to recover a sense of strength in

the face of challenge. In education, this sense of place encourages “reciprocity” between peoples and the landscapes they inhabit, with disciplines such as geology poised to mediate this relationship.

Places and disciplines hold in common the value of coherence, yet each coheres in its own fashion, places emphasizing personal experience and commitment to community, and disciplines stressing conceptual progress, mastery of a body of knowledge, and understanding of explanatory ideals. Nevertheless, the shared concern for coherence suggests the potential to reconcile their divergent purposes and integrate a sense of place with disciplined thinking under superordinate aims. Criteria of artistic work – vivid depiction, finding the universal in the particular, constructive neglect, and coherence itself (Elliot Eisner, 1998, *The Kind of Schools We Need*), may fulfill this function. *Querencia*, as both a meaningful attachment to a geographic place and as a place in the mind where understanding satisfies, completes the integration.

Kip Ault
Lewis and Clark College
ault@lclark.edu

Steve Semken
Arizona State University
semken@asu.edu

■ **Complete List of Technical Sessions, Short Courses and More!**

Dear GED Members,

For this year’s GSA Annual Meeting, we have a full slate of opportunities for you. Many of these technical sessions, trips, and short courses have joint sponsorship with the National Association of Geoscience Teachers, and we are working in close cooperation with them. Please consider submitting an abstract to one or more of these sessions. And even if you do not choose to present, there is plenty for you to participate in. We look forward to seeing you in Portland!

Sincerely,
Eric J. Pyle
GED 1st Vice-Chair and JTPC Representative

For more meeting information: <http://www.geosociety.org/meetings/>

For abstract submittal (deadline is August 11, 2009): <http://www.geosociety.org/meetings/2009/techprog.htm>

Technical Sessions of Interest to GED Members:

T10. Geoheritages, Geoantiquities, and Geomorphosites. The geological heritage of any nation, especially in the United States, lies in the unusual rock and landform sites that need attention and conservation preserve them for future generations and improve and promote education, scientific research, and geotourism.

T14. Sequential and Repeat Photography as a Tool for Earth and Environmental Science Research and Education (Posters). Photographs document Earth’s dynamic surface revealing climate change and human impact on the landscape. This session will involve researchers and educators using images to study how rivers, glaciers, volcanoes and other landforms change over time.

T97. EARTHTIME: From Developing Tools to Teaching about Time. High-precision geochronology is revolutionizing our understanding of Earth’s history. We seek contributions related to exploring the limits of precision and accuracy of geochronometers, calibration of proxy stratigraphies, and new efforts at educational in-reach and outreach.

T98. Earth Science in Place-Based Teaching (Posters). Participants will share ideas on using geographically diverse “places” as contexts for teaching Earth science. Place-based teaching cultivates local knowledge and encourages the appreciation of landscapes. The “place” approach also incorporates important cultural and aesthetic insights.

T99. EarthScope Education and Outreach: Connecting Students, Teachers, and the Public to the Dynamic Landscape of North America. This session presents case studies of efforts to engage scientists, students, teachers, policy makers, and the public with EarthScope data and discoveries, and their bearing on a broad range of scientific and societal issues.

T100. Field Geology Education — Historical Perspectives and Modern Approaches. This session will address numerous aspects of field instruction including historical perspectives, alternative curricula, field technology, original

research, and international experiences with a focus on learning goals, pedagogic value and assessment of learning in the field.

T101. GIS in K-16 Geoscience Courses: Constructing Knowledge using GIS in Geoscience Courses. Integrating GIS into K-16 geoscience courses provides rich opportunities for students to learn geoscience concepts while exploring relevant data and problems. Visualization, critical thinking, problem solving and computation skills are enhanced through the integration.

T103. Geology in the National Parks: Research, Mapping, and Education. This session addresses the role of geoscience in the National Parks. Presentations are encouraged on geologic research, mapping, surface/ground water studies, paleontology, coastal geology, education, and resource management on National Park Service administered lands.

T104. Geoscience Programs at Community Colleges: Models for Success and Innovation. Community College programs are diverse and multifaceted. This session will highlight a variety of programs and how they successfully achieve their goals.

T106. Opportunities and Challenges for Geologic Hazards Education in Cascadia: In Memory of John Lahr. This session will provide an opportunity for Geoscience educators, K-12 Earth science teachers, and scientists and officials to showcase successes in and challenges to geologic hazards education in Cascadia and other regions.

T107. Promoting Literacy About Earth System Science Concepts. Multiple community efforts have defined the fundamental concepts of Earth System Science. These documents serve as tools that can unite the scientific community in conveying a common message about Earth science to the public.

T109. Successful Models of Collaborations between High Schools and Two-year and Four-year Institutions. This session highlights collaborations with high schools that lead to students entering the geosciences, including dual credit, high school teachers offering courses for college credit and dual enrollment, high school students attending college classes.

T110. Teaching and Research Challenges and Successes for Solitary Geologists in Academia. Are you the only geologist at your institution? You are not alone! Come share your experiences and network with others like you. Discuss facilities, course load, research opportunities, challenges, successes, and what keeps you there.

T112. The Nature of Geoscience Expertise. Key aspects of geoscience expertise will be explored including spatial and temporal thinking, understanding Earth as a complex system, learning in the field, and integration of evidence across many scales of observation, methods, and sub-disciplines.

T113. Using Planetary Examples to Teach about Terrestrial Volcanoes. We encourage abstracts that review and provide ways of integrating volcanoes from other planets into geosciences courses to enhance students' understanding of terrestrial geology and allow students to expand their skills to multiple planetary environments.

T114. What Can We do to Help Our Students Become Better Learners? Fostering the Development of Metacognition and Self-Regulation. Metacognition, knowledge and regulation of one's thinking and learning, plays a critical role in learning, yet is often overlooked. This session explores approaches and challenges to teaching metacognition and self-regulation within the earth sciences.

T120. Darwin, Geology and Evolution: Impact of Darwinian Views on Scientific Theory-Making. In this session, we will discuss and celebrate Darwin's thoughts and past-present impact on geosciences, and will examine implications of Darwin's theory of evolution for geology, biology, theology, and scientific philosophy.

T135. Geology in the National Forests and Grasslands — Stewardship, Education, and Research. This session will explore some of the many aspects of the geological sciences conducted on the National Forests and Grasslands. Topics include paleontology, cave and karst geology, engineering geology and natural-hazard mitigation, hydrogeology, interpretive and recreational geology, geocology, and more.

T146. Ensuring Geologic Controversies are Addressed with Good Science in the Classroom, the Community, and the Capitol. Geologic controversies may be real or manufactured, but they always capture the public's attention. This session will present ideas and examples of ways to ensure the scientific perspective is included and given precedence when controversies arise.

T160. *From Virtual Globes to Geoblogs: Digital Innovations in Geoscience Research, Education, and Outreach.* Virtual globes, various means of online collaboration, and novel applications of digital images can significantly enhance geoscience research, education, and outreach. This session will highlight particularly innovative examples.

Field Trips and Short Courses of Interest to GED Members

► **Mon., 19 Oct. *Field Trip #426. Portland Geology by Tram, Train, and Foot.*** Leader: Ian P. Madin, Oregon Dept. of Geology and Mineral Industries. **US\$35.**

This trip will take participants on a brief tour of the geology of Portland by foot, light rail, and aerial tram. We will review the regional and local geologic setting and visit outcrops of most of the local units, including Columbia River Basalt flows, Missoula Flood deposits, and a late Quaternary volcano within the city limits. The field trip guide and a companion KML-based version will allow conference participants to self-guide the trip at their convenience if they cannot attend at the scheduled time

► **Sat., 17 Oct., 8 a.m.–noon. *Short Course #507. Helping your students investigate plate tectonics just like scientists.*** Instructors: William A. Prothero, Univ. of California at Santa Barbara (emeritus), and Sabina F. Thomas, Baldwin-Wallace College. **US\$90, includes materials. Limit: 50. CEU: 0.4.**

This workshop will focus on learners' use of Earth data to investigate the geometry and motion of the major tectonic plates. The use of these data for science investigations and example activities will be presented. Content will include the theory of plate tectonics, how the major plate boundaries can be studied using Earth data, how a science paper can be used to reinforce concepts and science processes, and how lectures, quizzes, course readings, and other activities support student success. All materials and data access tools will be provided on the "LearningWithData" CDROM.

► **Sat., 17 Oct., 8 a.m.–noon. *Short Course #508. Education Research I: Conducting qualitative geoscience education research.*** Instructor: Julie Sexton, Univ. of Northern Colorado. **US\$110. Limit: 35. CEU: 0.4.**

Participants will learn qualitative education data collection and analysis methods used in science education research. Case studies, demonstrations, and hands-on activities will be used to teach participants how to develop qualitative research studies, collect qualitative data (e.g., interviews), and analyze qualitative data (e.g., coding). This short course is designed for students, university and K–12 educators, and researchers who are engaged in or who plan to be engaged in geoscience education research. This course can be taken alone or in conjunction with the short course "Education Research II: Conducting quantitative geoscience education research."

► **Sat. 17 Oct., 1–5 p.m. *Short Course #509. Education Research II: Conducting quantitative geoscience education research.*** Instructor: Julie Sexton, Univ. of Northern Colorado. **US\$110. Limit: 35. CEU: 0.4.**

This interactive, activity-based course serves as an introduction to quantitative education research methods. It is designed for geoscience faculty or students who are or will be conducting quantitative education studies. Topics include developing quantitative education research questions, designing a quantitative study (e.g., selecting appropriate designs and statistical tests), collecting quantitative data (e.g., surveys), analyzing education data using statistical tests (e.g., ANOVA), and investigating causality. This course can be taken alone or in conjunction with the short course "Education Research I: Conducting quantitative geoscience education research."

► **Sat., 17 Oct., 8 a.m.–5 p.m. *Short Course #513. Teaching climate change and Earth history using ocean drilling data in introductory geoscience courses.*** Cosponsors: U.S. National Science Foundation, the Consortium for Ocean Leadership, and GSA's Sedimentary Geology Division. Instructors: Kristen St. John, James Madison Univ.; Mark Leckie, Univ. of Massachusetts–Amherst; Megan Jones, North Hennepin Community College; and Kate Pound, St. Cloud State Univ. **US\$30, includes continental breakfast and lunch. Limit: 35. CEU: 0.8.**

This one-day short course is for faculty teaching undergraduate introductory geoscience courses in climate change, oceanography, historical geology, or Earth science in which data and content on climate change, geologic time, age determination, and earth history are important. Learning materials introduced in the short course will be anchored in fundamental practices and discoveries of scientific ocean drilling research programs (IODP, legacy DSDP and ODP, and ANDRILL), and will infuse essential scientific observational, analytical, and synthesis skills, and critical thinking into inquiry-based classroom exercises for group work in both small and large classes. If you have questions about class content, please e-mail stjohnke@jmu.edu.

► **Sat., 17 Oct., 8 a.m.–5 p.m. Short Course #514. Pacific Northwest earthquakes and tsunamis for middle school teachers.** Cosponsor: The National Association of Geoscience Teachers (NAGT). Instructors: Robert Butler, Univ. of Portland; Frank Granshaw, Portland Community College; Roger Groom, Mount Tabor Middle School; Chris Hedeon, Oregon City High School; Jenda Johnson, USArray E&O; Bonnie Magura, Jackson Middle School; Beth Pratt-Sitaula, Central Washington Univ.; and Jill Whitman, Pacific Lutheran Univ. **US\$10, includes refreshments. Limit: 30. CEU: 0.8.**

By exploring inquiry-based lesson plans featuring Cascadian earthquakes and tsunami geology, participating teachers will gain understanding of (1) Pacific Northwest plate tectonics and earthquakes; (2) earthquake seismology and tsunami science; and (3) how EarthScope science is advancing knowledge of active continental margin geology. Activities will combine science content sessions with pedagogical sessions led by middle school and high school teachers of earth science. Participants will receive teaching resources, including computer animations of plate tectonic, earthquake, and volcanic processes, and virtual field experiences featuring Cascadia tsunami geology and Pacific Northwest geologic hazards. This class will be held at the Univ. of Portland; please contact Robert Butler, butler@up.edu, for more information.

► **Sun., 18 Oct., 8 a.m.–5 p.m. Short Course #518. Watch faults grow before your very eyes! Using a deformational sandbox in high school and middle school earth science classrooms.** Cosponsors: GSA's Structure and Tectonic Division and the National Science Foundation. Instructors: Michele Cooke, Univ. of Massachusetts–Amherst; Mary Ellsworth, Gallaudet Univ. **FREE; limit: 20. CEU: 0.8.**

Teachers will learn how to use a deformational sandbox to enhance student understanding of Earth's deformation using visual and hands-on activities. The sandbox can be used to directly and experimentally investigate concepts related to plate tectonics, fault systems, earthquakes, scientific modeling, and the nature of experimental science. Teachers will learn how to conduct specific experiments using the sandbox, to encourage student exploration of the sandbox as a model of real earth processes, and to support student learning, writing, and reporting activities with the sandbox. Instructions for building a classroom sandbox will be provided.

► **Sun., 18 Oct., 9 a.m.–5 p.m. Short Course #519. When worlds collide: Communication between scientists and emergency managers during crises.** Instructors: Jeff Rubin, Tualatin Valley Fire & Rescue; Cynthia Gardner, USGS–Cascades Volcano Observatory; Jay Wilson, Clackamas County Emergency Management. **US\$103. Limit: 25. CEU: 0.8.**

Low-probability, high-consequence natural events such as volcanic eruptions and earthquakes require effective interaction between scientists who study and forecast them and emergency managers who plan for and respond to them. This includes understanding roles and responsibilities, inherent uncertainties in forecasting natural phenomena, critical decision timelines, and effective communication with the public and policy makers. This course provides an introduction to the Incident Command System used by emergency managers and responders at all levels of government during crises, along with tips for effective public communication. Participants will engage in practical applications—realistic in-class exercises offering collaboration with practitioners from multiple disciplines.

► **Sun., 18 Oct., noon–3 p.m. Short Course #520. Using and developing historical image archives to investigate landscape change.** Cosponsors: U.S. National Science Foundation and GSA's Quaternary Geology and Geomorphology, Sedimentary Geology, and Geoscience Education Divisions. Instructors: Paul Bierman, Christine Massey, and Jamie Russell, Univ. of Vermont. **US\$10; includes lunch. Limit: 40. CEU: 0.4.**

Images, including photographs and drawings, provide a powerful means of documenting Earth's changing surface over time scales ranging from seconds to centuries. This course will show how images can be used to document a wide variety of Earth and environmental processes, including human impacts on varied landscapes, the effect of warming climate on glaciers, and the response of hill slopes and stream channels to deforestation. You will learn the pitfalls and promises of building your own image collections as well as how to interest students of all ages in earth science by using historic images to study change over time.

Pardee Keynote Symposium

Sun., 18 Oct., 1:30–5 p.m. *P6. Google Earth to Geoblogs: Digital Innovations in the Geosciences*
P. Kyle House, University of Nevada, Reno, Nev.; John Bailey, University of Alaska, Fairbanks, Alaska; Ronald C. Schott, Fort Hays State University, Hays, Kans.; Mano Marks, Google Inc., Mountain View, Calif.; Glenn A. Richard, Stony Brook University, Stony Brook, N.Y.; Peter A. Selkin, University of Washington, Tacoma, Wash.

Digital technologies such as Web 2.0 services, virtual globes, and new applications of digital photography can enhance understanding of geology at all levels and across all disciplines. This session will highlight particularly novel and innovative applications of these technologies.

■ **Planned Events**

► **Research Interest Group Social Event**

We are planning a Geocognition & Geoscience Education Research Interest Group social networking event on Tuesday of GSA (Oct. 20), 6-8 pm, place TBA. Anyone interested in meeting, networking, and socializing with other folks interested in geocognition & geoscience education research are welcome to attend. Prospective graduate students in geoscience education are especially encouraged to attend. Contact Heather Petcovic for more information: heather.petcovic@wmich.edu.

Heather Petcovic
Western Michigan University

► **First Annual Welcome Reception for 2-Year Geoscience Faculty**

The GSA Education Committee members and the Education and Outreach staff invite all geoscience faculty teaching at community colleges or other 2-year institutions that grant Associate degrees to an informal reception at the GSA Annual Meeting in Portland. This will be an opportunity for Community College faculty to meet and discuss their issues, needs, and questions that are unique to teaching at two-year institutions. Results from a survey of 2-year geoscience faculty by the GSA Education Committee in early 2009 suggested that this type of gathering at the annual GSA meetings could be beneficial and might open ways that GSA can help this particular group of geoscience teachers.

The meeting will be on Saturday, October 17, 4–5 PM, ending just before the Annual Geoscience Educators' Social Reception on Saturday, October 17, starting at 5 PM so that attendees can then join other geoscience community members interested in education. Locations TBA, but the plan is to arrange it adjacent to the 5 PM reception.

Both social receptions are free and open to interested participants. Attendance does not require payment of any meeting registration fees.

Elizabeth Nagy-Shadman, Chair
Geoscience Education Division
Pasadena City College

2008-2009 Geoscience Education Division Officers and Key Contacts

Chair: Elizabeth Nagy-Shadman, Pasadena City College, eanagy-shadman@pasadena.edu

First Vice-Chair: Eric J. Pyle, James Madison University, pyleej@jmu.edu

Second Vice-Chair: Paul E. Baldauf, Nova Southeastern University, pb501@nova.edu

Secretary-Treasurer: William Slattery, Wright State University, william.slattery@wright.edu

Past Chair: Kristen E.K. St. John, James Madison University, stjohnke@jmu.edu

Newsletter Editor: Mark R. Hafen, University of South Florida, mhafen@cas.usf.edu

Webmaster: Hugh Rance, Queensborough Community College/CUNY, hughrance@rcn.com

GSA Council Liaison, term beginning July 1, 2009: Lisa D. White, San Francisco State University, lwhite@sfsu.edu

2009-2010 GED Officer Candidate Biographies – Ballot is on following page.

Chair. Eric J. Pyle. Geosci educ; petrology. Educ: BS ESci/Geol, UNC; MS Geol, Emory; PhD Sci Educ, Univ Georgia. Prof Exp: GA Geol Surv, Contract Geol 84-86; HS Sci Tchr 86-92; UNC, Dept Geog/Earth Sci, Instr 89-92; U GA, RA 92-95; WVU, Dept Curr/Instr, Asst Prof 95-01, Assoc Prof 01-04; WVU Dept Geol/Geog, Adjct Assoc Prof 02-04; James Madison U, Dept Geol/Envtl Sci, Assoc Prof 05-present. Prof Affil: GSA 88-90, 05-pres; NSTA, ASTE, NARST, WVSTA, VAST, NAGT, NESTA, Sigma Xi. GSA Serv: GED 1st v/chr 08-09, 2nd v/chr 07-08. Other Serv: NSTA spec ed adv brd chr 99-02, Dist VIII dir 00-02; WVSTA, Pres 03-04; VAST ESci cmte chr 06-pres. Honors: Ohaus/NSTA Innovations in Sci Tchg 99; WVU Fndtn Outstndng Tchr 02. Rsrch Int: Earth science teacher preparation & professional development; inquiry in Earth science; Earth science curricula design; motivating adolescents in science education.

First Vice-Chair. Paul E. Baldauf. Tectonics; science educ. Educ: BA Geol, U Tennessee; MS, PhD Geol, George Washington U. Prof Exp: CDM Fed Progs, Proj Geol 88-89; Heidelberg Coll, Asst Prof Geol 98; Union Inst & Univ, Prof/Fac Advsr 98-present. Conc't Pos: Univ at Buffalo, Lect 03-present. Prof Affil: GSA mbr since 88; NAGT, CUR. Rsrch Int: Andean tectonics, elementary & secondary science education.

Statement of Interest: For the past nine years, I have worked for a nontraditional university in Florida called Union Institute & University. Our undergraduate students are mostly first generation college students and come to our university with weak skills in science. Most of our students are education majors and will become teachers in Dade and Broward Counties, the 4th and 5th largest school districts in the country. I've been a leader within my institution in research and policy issues in science education, pedagogy, and underserved students. I would like to bring my knowledge of these issues to the GED management board and learn more about what my colleagues are doing around these issues.

Second Vice-Chair:

Sadredin (Dean) C. Moosavi. Geoscience education; biogeochemistry. Educ: AS Sci, CC Finger Lakes; BS Envntl Chem, SUNY Envntl Sci & Forestry; MS, PhD Earth Sci, Univ New Hampshire. Prof Exp: Oyster River HS, Sci Tchr 98-00; MN State Univ-Mankato, Dept Chem/Geol, Asst Prof 00-05; Walden Univ, MS in Education Full Time Fac 05-06; Tulane U, Dept Earth/Envntl Sci, Prof of Practice 07-present. Prof Affil: GSA since 00; AGU, NAGT, NSTA. Honors: Invited AGU presenter NSTA 3/09. Rsrch Int: Geoscience education, place-based teaching, service learning, arctic/boreal biogeochemical cycling, climate change. Statement of Interest: I wish to build bridges between the academic and K-12 wings of geoscience education by facilitating communication across the institutional divides which inhibit implementation of best practices and quality content instruction across the geosciences.

Steven H. Schimmrich. Structural geology; Earth science education. Educ: AA Earth Science, SUNY Ulster; BA Geol, SUNY New Paltz; MS Geol, SUNY Albany. Prof Exp: Kutztown Univ, Instructor 97-98; Calvin College, Asst Prof 98-99; SUNY Ulster, Assoc Prof 99-present. Prof Affil: GSA since 92; NAGT. Honors/Awards: SUNY Chancellor's Award for Excellence in Teaching 07. Rsrch Int: Hudson Valley geology; geological education. Statement of Interest: Strong believer in the unique educational mission of community colleges and the importance of representation in the GED by CC faculty.

Secretary-Treasurer. Christopher Atchison. Geoscience education. Educ: AS Physics, Sinclair CC; BS, MST Geol, Wright State; Geosci Ed Doc Candidate, Ohio State. Prof Exp: Earth Sci Tchr 02-06; State Standards revision consultant 03-04; Instrctnl Dsgner, eTech Ohio 06-08 & Ohio Supercomputer Ctr 08-present. Prof Affil: Acting Dir, Natl Adv for Geosci Diversity 08-Present; GSA member 04, 07-present; AGU, NAGT, NARST, Pi Lamda Theta, Phi Kappa Phi, President OSU MSaTERs 07-Present. Rsrch Int: Alternative field experiences, multiple representation, immersive learning environments, constructivism, conceptual change. Statement of Interest: There is a great opportunity for GED to be a major contributor in how the future of geoscience field research is defined for the growing number of non-traditional students while maintaining the fundamental values of field training in geoscience courses. The nature and scope of field studies within our geoscience programs continues to evolve with the discipline, supporting technology, and options for meeting research and educational objectives in the field. I would like to provide my experience as an earth science educator and researcher to the GED management board to raise awareness in these issues and more.

GSA Geoscience Education Division Election: Ballot Instructions.

This is the ballot for the election of 2009-10 officers for the **GSA Geoscience Education Division**. *Please refer to the candidate biographies which accompany this ballot.* Vote for no more than one candidate for each office. Submit your vote in one of the following ways:

- 1) **By Mail:** Vote on the paper ballot below. Complete the bottom section of the ballot. Mail the completed ballot to: Geological Society of America, PO Box 9140, Boulder, CO 80301, Attn: Division Ballot. Ballots must be **received at GSA by August 31, 2009 or**
- 2) **By Fax:** Vote on the paper ballot below. Complete the bottom section of the ballot. Fax the completed ballot to GSA, Attn: Division Ballot, at (303) 357-1074. Ballot must be **received at GSA by August 31, 2009 or**
- 3) **Online:** Vote online at <https://rock.geosociety.org/ballot/vote.asp?Name=ged>. Log onto the ballot using your GSA member number (given on your mailing label) **or** your e-mail address (which will work *only* if your e-mail address is in your GSA member record). For assistance, please contact GSA at gsaservice@geosociety.org or (303) 357-1000 (option 3) or tollfree in the U.S. at (888) 443-4472. Electronic votes **must be submitted by August 31, 2009.**

Ballot – Geoscience Education Division.

Vote for no more than one individual for each office. Term of each office is one year.

Chair: (term of office is one year)

- Eric J. Pyle
- Write-In _____

First Vice-Chair: (term of office is one year)

- Paul E. Baldauf
- Write-In _____

Second Vice-Chair: (vote for one) (term of office is one year)

- Sadredin (Dean) C. Moosavi
- Steven H. Schimmrich
- Write-In _____

Secretary-Treasurer: (vote for one) (term of office is two years)

- Christopher Atchison
- Write-In _____

Your Name (printed) _____

Your Signature (required) _____

Your GSA Member Number (required)* _____

* Given at the top of your mailing label. For assistance, please contact GSA at gsaservice@geosociety.org or (303) 357-1000 (option 3) or toll free in the U.S. at (888) 443-4472.